

E(3)

# PATENT SPECIFICATION

DRAWINGS ATTACHED



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## COMPLETE SPECIFICATION

### Improvements in or relating to Road Bollards, Kerbs and Similar Traffic Flow Markers

I, STEWART CHAMPION, a British Subject, of 7, Bramley Avenue, Coulsdon, Surrey, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to road bollards, kerbs, fenders and similar markers used for defining traffic lanes or otherwise controlling traffic flow.

The need often arises to remove temporarily a bollard or a kerb or fender defining a traffic lane or to move it to another position. For example, it is sometimes desirable to use more than one half of a road for traffic flow in one direction at one time of the day and to provide for such additional traffic flow in the opposite direction at another time of the day, but this cannot be readily achieved if the road is provided with fixed bollards or kerbs dividing it into two lanes of equal width. The present invention provides an improved bollard or traffic lane marker which renders such traffic control possible without recourse to temporary marking devices.

According to the invention a bollard, kerb, fender or similar traffic flow marker is so mounted or supported in association with a housing adapted to be permanently fixed in the road or like surface that it can be lowered or collapsed into and be retained or remain within said housing where it lies flush with the road surface and forms a substantially complete closure to the upper side of the housing. Several embodiments of the invention will now be described with reference to the accompanying drawings wherein:—

Fig. 1 is a vertical section through a simple form of bollard adapted to slide to and from its operative position,

Fig. 2 is a view similar to Fig. 1 showing a form of hinged bollard,

Fig. 3 shows a novel construction of bollard in the form of a coiled spring,

Figs. 4 and 5 show two alternative forms of continuous kerb or fender,

Fig. 6 shows one method of actuating a vertically movable kerb or fender,

Fig. 7 is a cross section on the line VII—VII of Fig. 6, and

Fig. 8 shows another method of actuating a kerb or fender.

Referring first to Fig. 1, it will be seen that the bollard 1 is supported vertically for telescopic movement into and out of a tubular housing 2 countersunk into the road, the upper end of the housing and the upper end of the bollard, when retracted into the housing, lying flush with the road surface. The bollard, which may be tubular, as shown, or a solid post or pillar of girder or other form, may be formed of metal, timber, rubber, plastic or other appropriate materials or a combination of such materials and may be raised and lowered by any suitable means. In the drawing a fluid line 3 is shown to the lower end of the housing for hydraulic actuation, but electrical or other power means or manually-operable gearing or equivalent mechanical means may be employed. By way of example a pin and slot connection 4, 5 between the bollard and the housing prevents complete detachment of the bollard and it will be observed that in its elevated position the bollard forms a definite marker for the guidance of drivers and riders whilst in its lowered position it is obscured or remains as a lane marker substantially flush with the road surface and which can be crossed by wheeled traffic.

Fig. 2 shows a construction in which the bollard 1a is hingedly mounted at its lower end within the housing 2a so that it can be swung down to a horizontal inoperative position where it lies substantially flush with the road surface and, as in Fig. 1, forms a closure

to the housing in this position. The bollard may be formed of any desired material and be actuated by any manually-operable or powered mechanism, and releasable locking means may also be provided if desired to retain the bollard in either or both of its two positions.

In Fig. 3 the bollard takes the form of a spirally-coiled spring-like structure 1b which can be collapsed into a flat condition and be received in a correspondingly shallow housing 2b. The spring may instead taper towards the upper end or, alternatively, a parallel-sided coiled spring structure may be used in which case a rather deeper housing would be required, and in all instances the spring structure embodies a cap 6 at its upper end to form a closure to the housing when the bollard is in the collapsed condition. With this construction, positively-acting means are required for retaining the bollard in the inoperative condition, the means shown consisting of a central rod 7 attached to the cap 6 or to the upper end of the spring structure and sliding telescopically at its lower end in a tubular extension 8 of the housing, and a pin and slot connection 9, 10 between said rod and extension which slot has a return bend 10a at its lower end to receive and retain the pin against movement.

Fig. 4 illustrates one application of the invention to a continuous raised kerb or fender consisting in this instance of two hingedly-connected channel-section plates or strips 11, 12, normally urged by spring means 13 to the elevated position shown, but the plates having pin and slot or equivalent sliding connections 14 at their outer edges with the housing 2c such that the plates can be depressed to a horizontal position where they form a closure to the upper end of the housing. The springs 13 may be substituted by lever or other actuating means and here also any suitable locking means is used to retain the kerb in the operative and inoperative positions.

A rotary type of continuous kerb is shown in Fig. 5, the kerb 15 being of semi-circular cross section and supported on horizontal pivots 16 such that it can be positioned to project above the road surface or, by rotating it through 180°, to be received in a trough-like housing 2d. Alternatively, the kerb and the housing may be quadrant shaped in cross section such that a 90° movement is necessary to bring the kerb from the operative to the inoperative positions and vice versa.

Figs. 6 and 7 show a form of channel-section kerb or fender 17 which is movable vertically into and out of a box-like housing 2e by sets of toggle linkages 18, said linkages being extended and folded by an operating rod 19 pivotally attached to the linkages and extending longitudinally of the housing. The rod 19 may be reciprocated axially by any

form of manual or power-operated mechanism.

A modification of the construction according to Figs. 6 and 7 is shown in Fig. 8 wherein the kerb 17a is guided for rising and falling movements in a direction inclined to the horizontal by pin and slot connections 20, 21 between said kerb and the housing 2f, the kerb in this instance being actuated by a fluid pressure operated jack 22 extending in the same direction as the slots 21. Whilst I have used the term "continuous" in association with the described kerbs or fenders, they may if desired be used in short lengths at spaced intervals as separate markers extending in the direction of traffic flow, e.g. as lane markers, or transversely to traffic flow, e.g. to define road, parking or similar limits.

Finally, it will be understood that the housings will need to embody drainage means and sealing and/or cleansing arrangements but these may all be of conventional type.

#### WHAT I CLAIM IS:—

1. A road bollard, kerb, fender or like traffic flow marker, wherein said bollard or marker is so mounted or supported in association with a housing adapted to be permanently fixed in the road or like surface that it can be lowered or collapsed into and be retained or remain within said housing where it lies flush with the road surface and forms a substantially complete closure to the upper side of the housing.

2. A road bollard or like marker as claimed in Claim 1, wherein said bollard is supported vertically for telescopic movement within a tubular housing.

3. A road bollard or like marker as claimed in Claim 1, wherein said bollard is hingedly mounted at or near its lower end within a housing into which it can be swung down into a horizontal depressed position.

4. A road bollard or like marker as claimed in Claim 1, wherein said bollard comprises a spirally or helically coiled spring structure supported vertically above a housing and means for collapsing or contracting the spring structure and retaining it within said housing.

5. A road bollard or like marker as claimed in Claim 4, wherein the retaining means comprises an axially-disposed rod attached at its upper end to the upper end of the spring structure and movable at its lower end in a tubular portion of the housing, pin and slot or equivalent means being provided for securing the rod in a lowered position in said housing portion.

6. A kerb or like marker as claimed in Claim 1, wherein said kerb comprises a pair of hingedly-connected plates having sliding connection at their side edges with a housing, and spring or equivalent means for raising the plates from a horizontal position where they lie flush in the housing to an upwardly-projecting operative position.

7. A kerb or like marker as claimed in Claim 1, wherein said kerb consists of a tubular structure of semi-circular or quadrant shaped cross section and supported on horizontal pivots such that it can be rotated from a position in which it is accommodated in a correspondingly shaped housing to an elevated operative position above said housing. 20
8. A kerb or like marker as claimed in Claim 1, wherein the kerb consists of a continuous channel or like strip movable vertically into and out of the housing by the folding and extending of toggle linkages actuated by an operating rod extending longitudinally of the housing. 25
9. A kerb or like marker as claimed in Claim 1, wherein the kerb consists of a continuous channel or like strip having pin and slot or equivalent connections with the housing permitting movement of the kerb into and out of the housing in a direction inclined to the horizontal, and a fluid pressure operated jack for actuating the kerb and mounted within the housing.
10. A road bollard, kerb, fender or like traffic flow marker constructed substantially as described with reference to Fig. 1, Fig. 2, Fig. 3, Fig. 4, Fig. 5, Figs. 6 and 7, or Fig. 8 of the accompanying drawings.

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FIG.1.

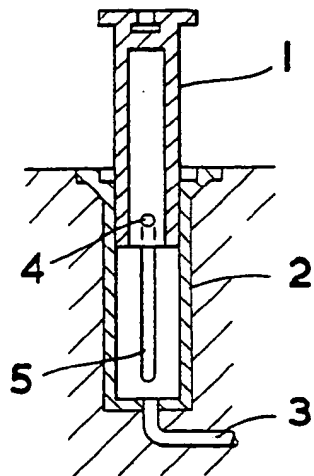


FIG.2.

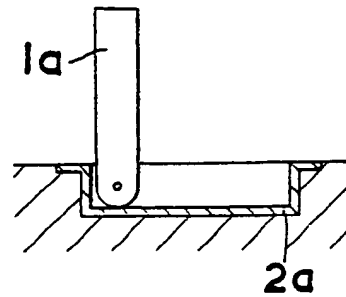


FIG.4.

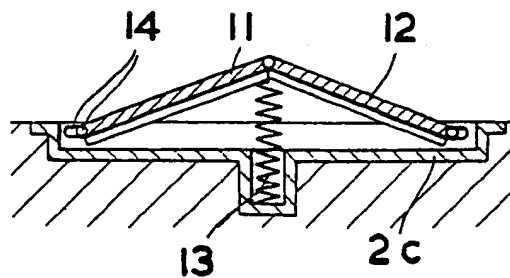


FIG.3.

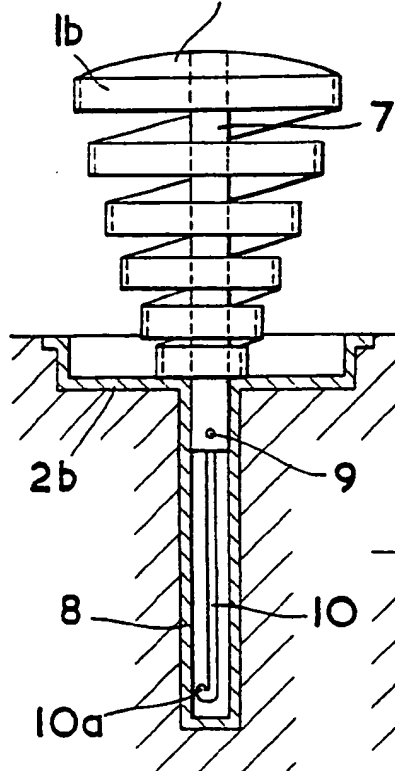
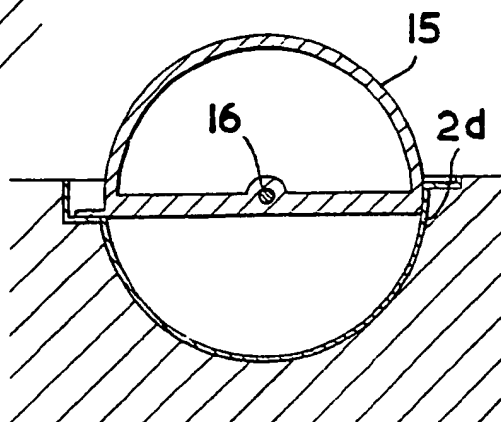


FIG.5.



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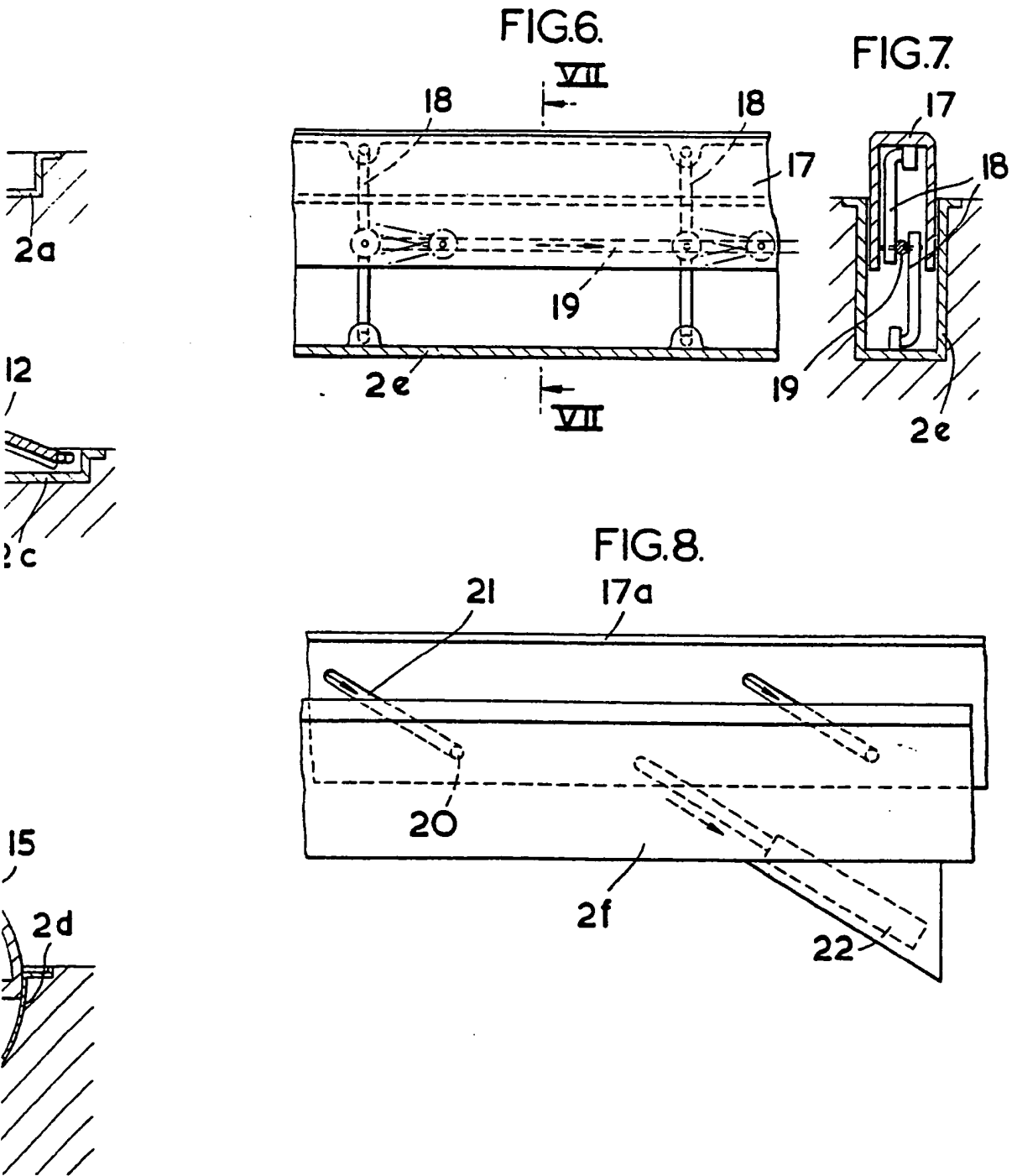


FIG.1.

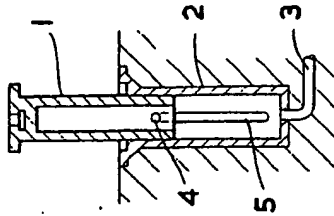


FIG.2.

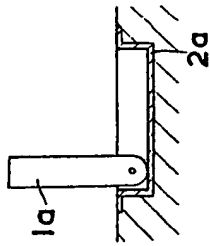


FIG.4.

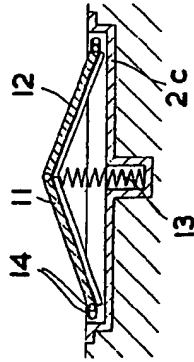


FIG.3.

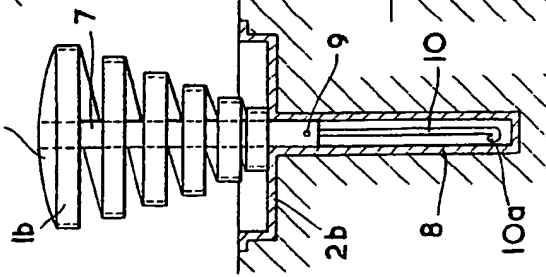
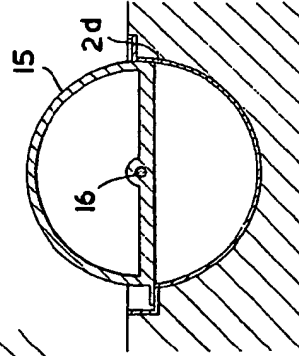


FIG.5.



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2 SHEETS  
This drawing is a reproduction of  
the Original on a reduced scale.  
SHEETS 1 & 2

FIG.6.

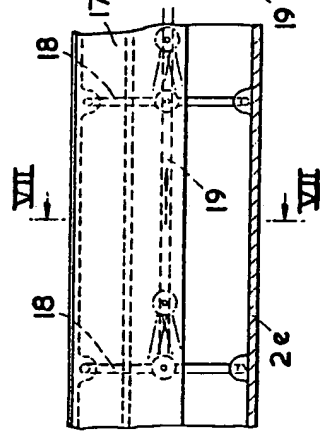


FIG.7.

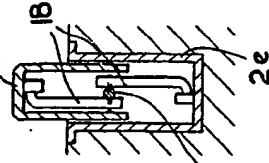
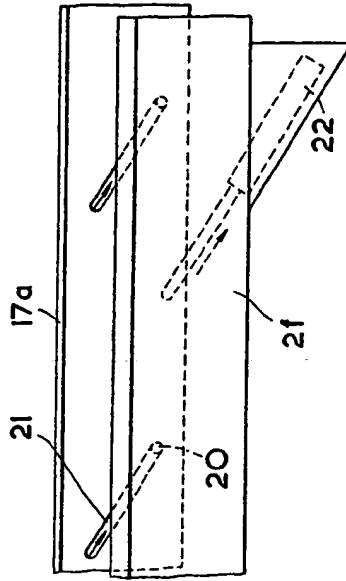


FIG.8.



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